

ABSTRACT

In order that an object can be warmed through the use of thermoacoustic effect, the acoustic heating apparatus includes a first stack 3a sandwiched between a high-  
5 temperature-side heat exchanger 4 and a low-temperature input-side heat exchanger 5 in a first tube portion 2a and a second stack 3b sandwiched between a low-temperature-side heat exchanger 6 and a high-temperature output-side heat exchanger 7 in a second tube portion 2b. A standing wave  
10 and a traveling wave are generated through self excitation in the first tube portion 2a by cooling the low-temperature input-side heat exchanger 5 to minus 20°C to 60°C. A temperature gradient is generated in the second stack 3b by propagating the resulting standing wave and the traveling  
15 wave to the second tube portion 2b, and high-temperature heat is output due to this temperature gradient from the high-temperature output-side heat exchanger 7 disposed on the second stack 3b side.